Merging ORS Standards to Facilitate Rapid Development of Reusable Spacecraft Software, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

DNet has been actively pursuing strategies for shortening the software development portion of the satellite development life-cycle for some time. We recognized upon analyzing the constituents of the traditional process that a disproportionate fraction of time is spent working with software that falls under one of two categories - developed from scratch to suit the needs of a new mission, or recycling "heritage code" that subsequently requires extensive rework to achieve compatibility with a new system. The development segment devoted to software may never be truly compressed to zero, but significant measures can be taken to streamline the process. Code reusability has the potential to offer tangible savings. DNet is leveraging AFRL and NRL data standards to develop Application Programming Interfaces (API) that allow code modules to be ported to new systems with no modification of the application-level code and minimal modification of the subservient layers that facilitate compatibility with lower-level system facilities and transport layers. This API will facilitate the creation of a satellite system from modular applications that can be combined in such a way as to provide support for a wide range of missions and be completely reusable as the physical composition of the satellite is changed.

Primary U.S. Work Locations and Key Partners

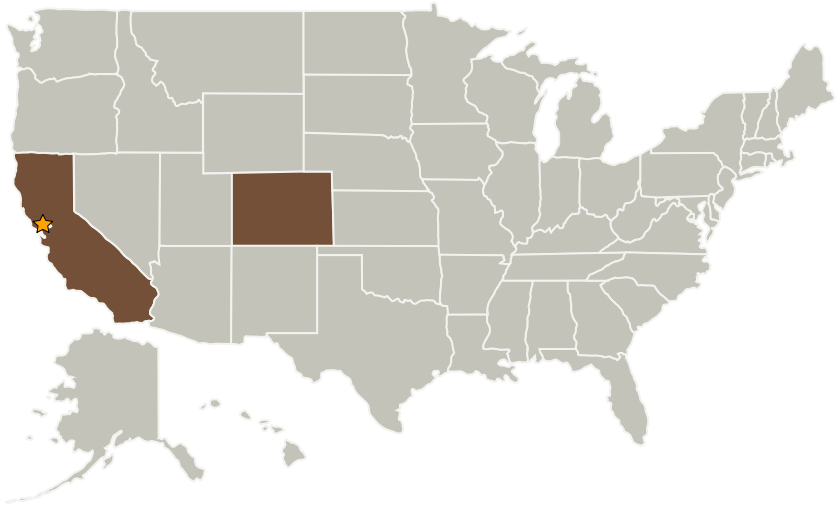

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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Design_Net Engineering LLC	Supporting Organization	Industry	Golden, Colorado

Primary U.S. Work Locations	
California	Colorado

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.3 Mission Operations and Safety
    - TX07.3.1 Mission Planning and Design